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A  
LECTURE  
INTRODUCTORY TO THE COURSE OF  
INSTITUTES OF MEDICINE,  
IN THE  
UNIVERSITY OF PENNSYLVANIA,  
FOR THE SESSION OF 1835-6.

✓  
BY SAMUEL JACKSON, M. D.

PUBLISHED BY THE MEMBERS OF THE CLASS.

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*Philadelphia, November 9, 1835.*

DOCT. SAML. JACKSON:

SIR:

At a meeting of the Medical Class of the University of Pennsylvania, it was unanimously resolved, that a copy of your eloquent and instructive introductory address be requested for publication.

The undersigned, a committee appointed for that purpose, tender you this request, hoping it will meet with your acquiescence, and at the same time assure you of their individual esteem and respect.

Yours, &c.

WILLIAM ELMER, JR.  
WM. B CASEY,  
H. S. PATTERSON,  
WM. HOPE,  
ALEXR. VAN RENSSELAER,  
WILLIAM YOUNG.

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*Philadelphia, Nov. 11, 1835.*

GENTLEMEN:—

I have had the honour to receive through you the communication of a resolution adopted by the Medical Class of the University of Pennsylvania, requesting the publication of my introductory address.

This testimony, approbatory of my humble efforts in their service, is too honorable to be declined—their request too flattering to be denied—my lecture is placed at their disposal for publication.

I beg you will make known to the gentlemen of the class, the grateful sentiments I feel towards them, and accept individually the expression of my sincere esteem.

Your obdt. servt.

SAMUEL JACKSON.

To

Messrs. } W. Elmer, jr. W. B. Casey, H. S. Patterson, Wm. }  
Hope, Alexr. Van Rensselaer, Wm. Young. }





## INTRODUCTORY LECTURE.

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GENTLEMEN—

By a new arrangement, the Institutes of Medicine, formerly attached to the chair of the Practice of Medicine in this University, has been separated from that department, and created into a distinct chair. The honor of this appointment has been conferred on me. Though appreciated as such an appointment should be, it has not been without some reluctance and hesitancy that it has been accepted. The task imposed on me in teaching the Institutes of Medicine, I feel to be, with an unaffected diffidence, a labor to which I am not equal. Of all the departments of medical science, none embrace so wide a range of investigation; none require for the discussions they involve, as multifarious and profound knowledge; none demand a higher order of intellectual exertion. I cannot look upon the position I occupy without a distrust in my capacity, to execute in a satisfactory manner, the obligations it imposes. I would have been much better satisfied with a less responsible station.

Not only do I entertain a distrust of my abilities to do justice to the important questions constantly arising for investigation and determination in this department of medicine, but I feel, that the occupations of a laborious practice, and a feeble constitution, do not enable me to engage in the extensive researches and experimental observations essential to their elucidation. The leisure is also wanted for that calm and deliberate observation and reflection on phenomena, so neces-

sary to the establishment of great truths, and important doctrinal principles.

It is true that an extensive practice possesses advantages that are indispensable. There can be no greater absurdity than the attempt to instruct in a science almost purely one of observation, without the opportunity of observing the phenomena that are the subject of instruction. Medical science does not exist in books or in lectures. It exists in nature: it is nowhere else to be met with. Books may serve as guides in directing the inquirer in his researches: but they are too fallacious to be adopted as unerring oracles, uttering only the responses of truth. A specious jargon of phrases and words, inconvertible into the expression of any distinct phenomenon, is too often substituted for observations; and fictions—the dreamy imaginings, spun from the cobwebs of the fancy, are enunciated as the verified facts of the science, and its demonstrated principles. He who would aim at the possession of a true knowledge of medical science, who would achieve for himself the lofty reputation of a Philosophical Physician, must devote himself to a study of the phenomena manifested in health and disease by actual observation, by experiment and research. It is in the laboratory, in the wards of hospitals, by the bed-side of the sick, in the dissecting room, that he must interrogate nature herself for the revelation of her mysteries—that he may be enlightened by her inspiration and imbued with the doctrine of living truth.

But, while experience is indispensable to form a medical instructor, the incessant engagements of private practice, when extended, and the obligation it imposes for devotion and attention to the patient's welfare, too often interrupt pursuits essential in the higher departments of the science. The want of this time has of necessity interfered with a close study of many branches of knowledge, that has a bearing on, and that elucidate many of the phenomena of the animal economy. I can only promise, that the deficiencies in the extent of my informa-

tion, will be compensated, as far as lies in my power, by zeal for your improvement, and by exertion to render available for your advantage in your future professional life, the store of practical information, it has been my constant object to accumulate.

I have not sought to exaggerate the importance of the Institutes of Medicine, in a Medical Education. The very name implies their character—*Institutæ*—Laws—established principles—consecrated maxims. Taken in an enlarged sense, the Institutes of Medicines embrace the laws of organized matter, applicable to the understanding of the laws of the human organism, governing its phenomena in health and in disease. They become the bond of connexion, uniting the different branches of medicine into a single body of doctrines—they give a unity to the various departments and elevate them to the character of a science. Anatomy, Physiology, *Materia Medica*, and Practice, as they are treated of in the generality of works, and in the lectures of the schools, are each independent of the other—No necessary connexion exists between them. What relation does Special Anatomy, the forms, the positions, the structure of an organ, bear to the Practice of Medicine, or the treatment of its diseases? it is so slight as scarcely to be discovered in a practical view. In like manner, what relation, in the works of physiology, is seen to connect the function with the structure, or with the pathological condition of a tissue, or the therapeutic operation of a remedy, or the proceedings of practice? None. *Materia Medica*, also, confined to the description of the physical characters and the properties of medicines, the effects they produce, and their prescriptive administration founded on authority, is dissevered entirely from Anatomy, Physiology, Pathology, and loosely hangs upon the skirts of Practice. The Practice itself directed to names, and groups of symptoms, as constituting diseases, stands in isolation from its collateral branches. The Institutes of Medicine remedy these very obvious defects. Embracing the whole animal organism in their researches, they investigate the nature

of the organic elements, and develop the laws that give origin to the organs. They connect these with their animating forces, the functions they execute, the modifications they suffer in disease, or that are excited in them by medicinal agents. Every organic phenomenon is sought for, and explained by the laws of the organization. The whole are thus included in a consecutive series, embracing all the departments of medicine, and rendering them available, with a higher degree of certainty by the physician, in the great end of Medical Science—the preservation and restoration of health.

The absence of the Institutes in courses of Medical Instruction, deprives medicine of the principles and character of a science. It degenerates into a mere Empiricism, and those, who under such auspices enter the profession unacquainted with medicine as a science, sink into routinists soon detected by the intelligent portion of society, and often find themselves rivalled in public confidence by empirical pretenders, possessing like themselves, an established routine, in the treatment of every disease. That the Institutes have the bearing on the science I have asserted to belong to them, will, I think, be apparent, from a general view of the character and objects of Medical Investigation.

The Study of Medicine is a Philosophical research into the nature, causes, general laws and modes of modifying the most numerous, complicated, and recondite, of all those phenomena, that, in various sciences, employ the intellect of man. I do not hesitate to assert that it is the most elevated department of Philosophy. What is medicine but the science of organization, and of vitality? And in what other science are the facts or phenomena so difficult to seize on and appreciate; to constitute into regular formula as connected with each other; and influenced and modified by so many extraneous circumstances, baffling calculation and perplexing research. Not Astronomy: for there the facts are limited, and occurring under a small number of physical laws well known, they

are determined by the principles of mathematical calculation, with absolute precision. From this circumstance arises the perfection this science has attained. Not Jurisprudence and Law: for in these the principles of equity are no longer the subjects of investigation and contention, while the enactments of statutes, and the rules of proceeding are accessible to moderate research, and reduced to a fixed routine. Not Physics and Mathematics: for in these departments axioms and theorems never varying, are applied to the solution of the problem in question, and to which they are always applicable. Not Chemistry: for in this science, also, the general principles or laws are few, and the facts of a fixed character seldom deviate from their ordinary occurrence, and can consequently be predicted with certainty. Its difficulties exist in the extension of its phenomena, and their increasing complexity, as it rises from the simple to the higher degrees of combinations. But, in medicine, where are the positive elements of its calculations? what are the established axioms for the solution of its problems? They do not exist. Its principles are yet to be fixed; its almost endless facts, reported from age to age by doubtful authorities, too often loosely observed, and more imperfectly recorded, are uncertain, controverted, fluctuating, are yet to be verified by a more severe and discriminating observation, by enlarged and careful experiment. How immense the range these phenomena occupy. They commence with the first germ, a mere atom of shapeless, transparent, and semifluid albumen. They follow the rudiments of the organs, as they appear and are developed, until they attain their perfect condition, passing through the ages of infancy, youth, manhood, and old age; varying and peculiar in each. The elements of this compound structure, and most complicated of mechanisms, are each investigated in all its varieties. The organs formed of these elements, as well as their functions, are the subjects of rigid examination in their natural condition, and as modified by disease. But it ends not here. The

organic struture arranged on Physical and Chemical principles, is animated and vital: the animal economy exhibits a combination of physical, chemical, and vital phenomena so blended, that it is impossible clearly to discriminate and separate them. Vitality probably, may prove to be the transcendentalism of Physics and Chemistry. Medicine, for its completion, must necessarily wait the final perfection of those sciences, and especially in the investigation of the forces that give origin to its phenomena, generated by its own actions, to the further development of the Dynamicks of Physic and Chemistry, unknown in this country, but appearing in Europe, like a crepusculous dawn on the horizon of general science. Vast as is this collection of phenomena, it constitutes but a single department of our science. The forces of vitality governing the living mechanism, are susceptible to the actions of external influences to an unlimited extent, controlling, modifying, disordering, destroying its mode of being, and the order of its phenomena. Man, the preservation of whose organization in a natural state, is the end of our science, is so endowed that he is operated on by the influence of the whole universe. From the planets circling in their vast orbs, and in their remoteness almost inonceivable, to the mere atomic particles of this earth, all possess the capacity to affect his phenomena. The air, in its sensible and insensible properties, the waters, the earth, the animate and inanimate things that cover its surface, or lie concealed in its bowels, the imponderable agents of nature, caloric, electricity, magnetism, universal in their presence and power, though so many of them are the means of life, are acting to the disturbance, disorder, and destruction of our organism.

What a multiplicity of phenomena is embraced in this view, yet it does not comprehend all that enter into the domain of our science. The instinctive propensities, the moral and intellectual powers of man, not only in their operations influ-



ence the functions of his various organs, they are themselves reacted on by these same organs, become the subject of numerous maladies, the most afflictive and dreadful in their consequences, of all the host that desolate the human family.

Am I not right when I assert that the phenomena of medicine constitute it, from their number, complexity, and diversified character, the most difficult of sciences; that the investigation of the causes of these phenomena, with a view to their generalization, and reduction to principles, elevates it to the highest ranks of philosophy.

The immensity of the facts of medicine render their generalization necessary to their being understood. No memory could be trusted to for the retention and application of its details. The establishment of Principles or Laws compose science. Until this is established it is an empirical art—irregular, uncertain, not unfrequently mischievous in its proceedings. Stability, certainty, safety, can alone be imparted by science.—Facts can be applied in Practice with precision only when they can be reduced to positive formula, in which the exact location, as regards its precursors and its sequences, is determined for each fact. When this can be accomplished a science approaches its completion. The beginning and the end have scarcely a feature of resemblance. Who would recognise the present splendor of Chemistry, with its arranged formulas, the precision of its facts, the accuracy of its calculations, the certainty of its processes, in the crude notions and clumsy operations of the alchemists. How little similarity is to be traced of the magnificence of Astronomy, developed by Kepler, Newton, La Place, and the Herschells, in the first observations of the starry firmament made on the plains of Babylon by the watchers of the night, and the Ptolemaic system to which they gave origin.

How little can the navigation of the famed Tyre or Sidon, coasting the shores of the Mediterranean in boats impelled by oars, be compared to the boldness of modern navigation.

Launching on the wide expanse of the ocean, the mariner confiding in the principles of science, feels himself secure under its protecting care. Fearlessly he braves appalling dangers. From a confidence in the resources and the power science confers on him, he contends with the warring elements, and triumphs over the storm and battling waves. How wonderful, (though familiarity destroys the wonder) to behold that little bark—a speck, an atom in the immensity of ocean, traversing for months the trackless surface of the deep, and working its way, spite of adverse winds and opposing currents, to its destined port, that a mere speck upon the earth. What a beautiful illustration of the power of science. How convincing a demonstration that the perfection of an art is deriveable from the generalizations that establish its principles, and elevate it to a science.

This is to be accomplished for medicine, and until accomplished it will remain imperfect, its reasoning fallacious, its observations deceptive, its practice uncertain. It will continue in the degradation of a routine art, or an empirical profession. Medicine, in the route of its improvement, must follow the track all others have pursued.

The commencement of every science is the facts accumulated by observation. While they are but partially developed, small in number, and not correctly understood, the relations they bear to each other are with difficulty perceived, and are often misapprehended. Their application to practical purposes, must, for the most part, be empirical; for, while imperfectly known, it is not possible to connect them in the regular series of their production, and thus to construct formulas of a positive value, constituting the principles of a sound theory—this last can only be accomplished after facts or phenomena have been completely ascertained, and their accuracy verified by repeated observation and reiterated experiment. It is then only they are fitted to become the subjects of investigation by the rational powers, that they are prepared to enter the domain of



logic, and capable of the application of induction for useful ends. Before the knowledge of phenomena is perfected, all attempts for generalization or the formation of a theory are immature, and prove abortive. It is not a possible task; it is not in the grasp of human intellect, however mighty may be the force of its endowments, and the splendor of its genius, to establish from them principles of an extended application. The form of a science, it is true, may be imparted by the creative energies of a fertile imagination; but it is as a phantom shape called forth by the necromancer's wand—an unreal presence, dissolving into thin air, and vanishing before the first gleam of light.

Generalization, or more properly, causation, is an instinctive operation of the intellect. Empirical proceedings are painful to the intelligent mind. It always seeks the connexion of cause and effect, the reason of events; for, possessed of these, it is the master, not the slave of circumstances—it feels a consciousness of power—an innate sentiment of an elevated nature, destined for dominion—it controls, directs, and renders nature itself subservient to its designs. Impelled by this feeling it is not surprising, that, in the earliest periods of science, in the midst of the poverty and destitution of facts, the impulse of gifted genius, should have so often spurned and overleaped the narrow bounds in which it was circumscribed. The true character of knowledge was unknown. It was little suspected to consist in the discovery of phenomena by close attention and accurate research—their verification by experience and experiment; and their co-ordination in the order of their occurrence. Knowledge was a product of the mind alone, and truth, the offspring of the intellect, was to be discovered in the profound depths of reflection, or drawn from the rich stores of imagination. Theories were then poetical creations. Where facts were wanting suppositions were resorted to, and the deficient links in the chain of consecutive phenomena were supplied by ideal conjectures. But, in the progress of science,

facts accumulate, and are invested with a higher degree of accuracy. Often a single discovery, or rectification of an error, is sufficient to sweep away the most elaborately arranged theory. For theory deduced solely from the imagination, is but as the filmy web, wove by the spider from its own entrails—The fragile edifice fitted for entrapping the feeble, is instantly broken down and destroyed by weightier contact, or the action of a more vigorous force.

Theories, or generalizations of facts, must, and always will exist. They are important aids for the advance of science. They are necessary to knowledge. They precede and announce the approach of truth. Some of you have stood in the gray of the dawn on an eminence, looking on the plain below, its varied objects dimly visible, but nothing seen distinctly. You have beheld the clouds that fringe and canopy the eastern horizon, catching the first beams of approaching light, refract the pure ray into a thousand gorgeous hues, and painted with the richest dyes, throw on the objects they illumine a false and uncertain coloring. Forever changing, each one glowing as it rises with a more brilliant and purer light the gloom is scattered, and the forms of things stand forth in bold relief: the hill, the dale, the forest and the cultivated field, the village and the distant town, the stream sparkling in the morning ray—all are distinctly figured in the scene. And now, heralded by these imposing splendors, appears the great luminary of the universe, in its eternal march, and all is light. Obscurity flies, every object is individualised, the minutest atom is discovered; forms, properties, characters, all are revealed in the broad blaze of day.

In this scene is figured the advance of knowledge, the progress of theories, the approach of truth. At first, from the paucity and obscurity of facts, they are feeble, inconclusive, fallacious, but as facts are accumulated, are more perfectly embodied, and their relations more justly appreciated—new theories supplant the old, for every discovery that changes the rela-

tion of phenomena, necessitates a new theory for their explanation, as they are then understood. When subsequent investigations call into existence additional facts, new generalizations are required. Yet, with the progress of the knowledge of the phenomena of a science, every change is an advance on that which precedently prevailed. Each successive theory is more perfect, consistent, presents fewer anomalies and exceptions, until the full and perfect completion of the facts of the science, the theory is the science itself, embodying and condensing its vast mass of phenomena into a few general principles or facts, rendering the whole frame of the science clear, perspicuous, easily understood, and distinct.

While a science is in progress, and knowledge advancing, theory must be unstable and fluctuating. This objection does not in reality apply to the theory of the science, but rather to the defective facts of the science. It is, because the facts are changeable, that the theory is mutable. Without theory a science is a chaos of facts, of elements confusedly heaped together, difficult or impossible to comprehend. Theory is nothing more than the arrangement of phenomena in the order of occurrence. The error too often committed, is the belief, that each successive discovery of facts, and the new theory to which of necessity it gives rise, are the completion of the science; that the limit of discovery has been reached; that all its phenomena are fully explored; and, consequently, that no source of change in the theory is to be looked for. This is the error that has proved fatal to so many theorists: imposed on by vanity and self-love, they have become visionary enthusiasts, proclaiming an epoch of perfection, a termination of laborious researches, a science accomplished. But this exaggeration does not derogate from the theory thus misunderstood, and put forth with fallacious pretensions. It merely subjects the vanity and ill-founded confidence of the author to ridicule. Few of the sciences are so far advanced, that any of their theories can be regarded as established. We must look on all of them

with distrust, and regard them as artificial aids to assist our knowledge as far as it is unfolded, and to render it more available to practical purposes.

What has been said of science in general, is peculiarly applicable to medical science. More than any other has it encountered difficulties, in its origin and progress. The facts of medicine, the phenomena, the objects of its research and observation, are, as has been shown, the most difficult, recondite, and extensive in character, and varied in nature. They cannot be comprised in a single category, and studied in one point of view. In the human organism, the phenomena of which, in its natural or healthy, and its anormal or morbid conditions, comprise the science of medicine, physical, chemical, and vital phenomena and laws are concentrated in their most perfect state, and highest degree of complexity. The most important of these phenomena, further pass in the interior of the body, or in the intimate structure of the organs, concealed from the view, and abstracted from direct investigation. For the perfect understanding of a phenomenon, it must be regarded in all its characters; it must be examined in every light; it must be viewed in its physical, chemical, and vital attributes; it must be the subject of actual observation and experiment. Is it, therefore, surprising, that phenomena so complex, in their nature, demanding for their thorough and accurate perquisition, knowledge at once profound and varied, should, for so long a period, have baffled the efforts of the ablest intellects? It was not in the order of things that in the earlier epochs of our science, they could have been properly understood—they must of necessity, from the imperfect state, or entire absence of the collateral sciences, have been viewed in lights altogether false, and have led to conclusions wholly erroneous. It is less matter of astonishment that so many mistakes should have been committed, than that so much of truth, under difficulties so insuperable, should have been divined. Let us not reproach the early theories of medicine. What were called the facts of the

science were still more absurd, and its theories must of consequence have been frivolous, and even ridiculous. The phenomena attempted to be investigated could not be properly appreciated. The methods of observation pursued, and the means of research known, were wholly inadequate to their elucidation, and developement of their nature. But, as the collateral sciences have advanced to a higher state of cultivation, and experimental investigation, and careful, patient observation are more relied on as the sources of correct knowledge, the phenomena of organized beings are capable of, and have received a superior illustration. The facts of medicine, studied and developed after these methods, have attained a far more lofty rank, and may justly lay claim to the character of positive phenomena. With the advancing improvement of the facts of the science, the greater degree of accuracy attending on medical observation and research, the theories of the science, have become more rational, they embrace a large mass of facts, which they render advantageous by condensing them into a few general principles, susceptible of an extended application, and capable of a practical bearing.

Medicine, like every other science consists of two portions. Its facts and its theories.—The first are the phenomena, appreciable by the senses and faculties with which man is endowed, determined by observation, by research, and by experiment. The last are the arrangement, the co-ordination of the facts in the order of their succession, and the establishment of the relations one bears to another in the connexion of cause and effect. This result is accomplished by the exercise of the rational faculties forming inductions, or the relation of antecedents and events. In this view, theory is not to be, and cannot be confounded with hypothesis, or the conjectural relation of phenomena, by adopting suppositious facts, where the positive are unknown. A principal difficulty to the progress of medical science is the number of the theories that compose it. The structure of each organ, the function of each



organ and apparatus, the diseases of each organ, have their separate theory: and each of these subordinate theories is more or less involved in, and forms an important part of the general theory of the science.

In medical instruction, the theories or generalization of the facts of medical science, are embraced in the Institutes of Medicine. It is the department in the arrangement of this school confided to my charge. In surveying this extensive range of the most intricate, embarrassing, and disputed questions of science, it is not with affected diffidence that I distrust my powers to do them justice. I can do no more than promise to enter on them with zeal, to investigate them diligently, to study carefully the daily accumulating facts, the activity and ardour of the profession in experimental and positive observation, are developing; and to form conclusions under the guidance of a severe logical induction. It is impossible, gentlemen, not to err in the decisions of so many, and complicated subjects, but, in adopting this course of proceeding, and initiating you in this system of medical inquiry, I enable you to correct for yourselves the errors of your instructors. In abandoning mere authority as a supreme arbiter, and appealing solely to reason; in looking to the remote and proximate connexion of facts for explaining the production of phenomena, every intelligent and instructed mind is made to judge of the validity of the argument, and the correctness of the observations on which it is founded. You assemble in this hall less as scholars obedient to a preceptor, and bound to receive his dicta, than as disciples assisting at the discussions of the difficult questions of a high philosophy. It is not your memory that will be taxed for the retention of rules and precepts, a learned nomenclature or formulas, and prescriptive directions, too often found in practice futile and inapplicable. I shall not pretend to teach you positive truths, and demand an implicit belief. The utmost that can be pretended to, in the actual state of our science, is approximations and probabilities. It is

your convictions that are to be addressed, and to which we can claim a right only when we can make the nearest possible approach to demonstration, the nature of the subject will admit.

The Institutes of Medicines comprise a vast field of most interesting and important inquiry. Its subjects are the generalization of the facts or phenomena of organization and laws of vitality. They sweep over the whole field of the science. The elementary composition, the intimate structure, vital forces and functional actions of the organs—the modifying powers of exterior agencies in the maintenance of the natural, or developement of the pathological condition—the rationale of the phenomena, or theories of the natural or anormal organization and vitality, constituting health and disease, are the inquiries at once profound and extensive, that will engage your attention in this course of lectures. It must be obvious, however, that, in the system of medical instruction, adopted in this country, imperfect in its courses, and too limited in its time, discussions so varied and complicated cannot be embraced in a single course or term of lectures. Little more can be accomplished in so limited a period, than to prepare the ground-work of this course, and to arrange the basis on which you may proceed to the completion of this department of your scientific education, by future self-instruction. The institutes or principles of medicine, by investigating the production of phenomena, the ascertaining of their nature, their reference to a fixed location, or as connected with an organ of the economy, give to them a positive value. They banish all ambiguous phrases, and unmeaning terms from the science: and medicine from a conjectural art, takes a position among the positive sciences.

A neglect of the principles of medicine, derived from an analysis of the mechanism of the animal economy, entails a most lamentable ignorance on the practitioner, disgraceful to himself, and hazardous to his patient's welfare. He may be a

diplomated doctor—he may be a professor and learned teacher—but he is not a physician—a medical philosopher—he cannot avoid the most serious mistakes—he is exposed to the commission of gross blunders. Let us adduce the proof.

The symptoms of diseases are the language addressed by the suffering organs to the senses. But this language of the organs, like our vocal language, is too poor to express, by a distinct sign, the varied condition of each organ. The same symptom is employed to announce disease in different organs, and diseases also of an entirely opposite nature. Hence it happens that physicians who attend to symptoms alone, will pronounce very different opinions, give a different diagnosis in the same case. This circumstance, one of daily occurrence, is a source of great obloquy thrown on the profession, and justly destroys confidence in its pretensions. I have known a case, in which, a different diagnosis has been formed by each physician, who has seen it. According to one, the disease was sub-pneumonia, another pronounced it disease of the heart, a third hepatic disorder, a fourth debility and dropsy; while the affection consisted in disorders of the nervous functions, sympathetically excited by a fixed local disease of the pelvic viscera. Now, how is this? Is medicine so devoid of principles, that it is incapable of certain results, that men of eminence and experience are thus liable to constant mistakes, from the absence of science in medicine; or, are their errors imputable to the want of science on their part?

That symptoms are as equivocal as I have represented them, can be illustrated by numerous examples. We will select a very common one:—cough. Coughing is a phenomenon manifested by the respiratory apparatus. It consists in the rapid expulsion of the air, through the air passages, from the lungs. Its object is to disembarass, or free them from various irritating, and offending causes, and to prevent their complete obstruction by the accumulation of mucus, pus, or other fluids. It is accomplished by the sudden convulsive action of the muscles of respiration, especially the diaphragm, at the



same time that the air-tubes themselves are contracted, and their calibre lessened by a spasmodic action of their muscular fibres. The resistance thus formed to the movement of the air, gives to it greater impetus, and the matter to be expelled is with more certainty removed. But these varied muscular actions are called into operation by nervous force, or excitement, for which especial nervous organs exist—the respiratory tract, forming the lateral columns of the medulla oblongata, and superior portion of the medulla spinalis. Now, coughing may be produced by irritations in any one portion of this complicated apparatus. It may proceed from the larynx, from the trachea, from the bronchial tubes, from the vesicular structure, from depositions in the cellular tissue of the lungs, from the pleura or exterior membrane of the lungs, or from the nervous respiratory organs: and these last may be the seat of disease themselves, or merely sympathetically affected by disease located in very remote organs. Of this last fact my practice at this time presents to me an interesting example. A patient has been laboring under a violent cough for several months, which has resisted all the treatment directed to allay it. A close analysis of the condition of the organs, has led to the detection of cystic disease, the irritation of which, in a nervous temperament, has been productive of a nervous cough.

Examples not less pregnant, might be adduced as regards other symptoms—such as dyspnœa—irregular or difficult breathing—palpitations of the heart, vomiting, purging, headache, delirium, and other symptoms of various kinds, all of which are produced by affections the most diversified, by causes the very opposite of each other, by conditions of organs wholly dissimilar.

If the symptoms of disease possess this doubtful character, how are we to be guarded against the serious mistakes into which they may lead us? There is but one method—by cultivating medicine as a science—by the investigation of all its phenomena, in a spirit of strict observation—by the establish-

ment of principles reducing the multiplicity of facts to certain formulas, or well arranged categories. Medicine then becomes a high philosophy, and its practice, the application of fixed principles, for the solution of doubtful questions, and the obtaining of positive results in all its proceedings.

The Institutes of Medicine have for their object\* the attainment of this end. Every phenomenon is fixed at its true value: it is attached to an organ, and has a specific intention—it expresses a condition of the organ. Diseased phenomena are consequently on the line of functional phenomena—disease is a morbid or pathological function: the same law presides over both; they proceed from and express an organic condition, and mode of vitality. In order, however, to be able to comprehend this fact, and to accomplish these objects, the animal economy, that most complicated piece of mechanism, must be decomposed, be resolved into its component elements. Each apparatus is to be separated into its constituent organs, each organ into its tissues, each tissue into its organic elements. The nature of each of these, its mode and expression of vital activity, and influence on the composition of the whole economy are then to be ascertained. The simple phenomena of the organism, the elementary principles of the organs, and their elementary vital phenomena being thus determined, the observer is prepared to advance to the study of the compound structures, and combined organs. It is only when having established his axioms, that he can proceed with confidence to the calculations of the problems he is called on to resolve. This is the only basis on which to erect a scheme of sound observation. It is the only safeguard against the deceptive signs that so often lead the medical practitioner astray.

In the course of lectures, I shall have the honor to deliver to you in this school, it will form my principal object to give this direction to your studies, and to imbue you with this spirit of analytical and positive philosophy. No more lasting benefit could be conferred on society, could a broad scheme of

medical education, placed on a level with the higher range our science has taken, be introduced into the medical instruction of our pupils. It would be a cause of gratified pride and ambition, to know, that the pupils of this University, should be imbued with this spirit, and be distinguished from those of all other schools, by the philosophical manner in which they investigate the nature of disease, and proceed in its treatment.

Endowed with this knowledge you will possess confidence in yourselves; you will win the confidence of the public. Seldom will you find yourselves at a loss to comprehend, and to explain the phenomena you witness. You will understand what you observe—you will know when to do, what to do; and what is not less important to know, *when and what you are not to do*. You will be placed in the most estimable position in society, honored, respected, esteemed, and beloved by the grateful hearts of those whom you have served in the most essential of all human interests. How often will you then find applied to you the expression of Hierophilus—*Manus Dei*—the hand of God; for you will be enabled to understand, to correct and rectify the defects of that nice and delicate mechanism—the master-work of the Great Creator—the wonderfully, and fearfully formed organism of man. Most truly and fervently do I hope, that thus accomplished in the elevated philosophy of medical science, you will verify in your professional life, the language of the sacred preacher—“The knowledge of the physician lifteth up his head, and in the sight of great men he shall be in admiration.”





